IN THE CLAIMS:

1-17. (Canceled)

18. (Currently amended) A method of producing and treating a sheet suited to be used as a component or as a part of a component in a fuel assembly for a nuclear light water reactor, which method comprises the following steps:

a) producing a sheet of a Zr-based alloy by forging, hot rolling and cold rolling in a suitable number of steps, wherein said alloy contains at least about 96 weight percent Zr;

b) carrying out one of an $\alpha+\beta$ quenching and a β quenching of the sheet when the sheet has been produced to a thickness which is equal to the final thickness, and approximately equal to the final thickness, of the finished sheet;

c) heat treating of the sheet in the α-phase temperature range of said alloy, wherein step c) is carried out after steps a) and b) have been carried out, and wherein

the sheet is stretched during the heat treatment according to step c);

wherein said stretching is carried out such that the sheet directly after having gone through the stretching has a remaining elongation compared to the state of the sheet immediately before the stretching; and

wherein said remaining elongation is between about 0.1% and about 7%.

19. (Previously presented) A method according to claim 18, wherein step b) is a β quenching.

20. (Previously presented) A method according to claim 18, wherein said stretching is carried out at a temperature of at most the temperature which constitutes the highest temperature in the α-phase temperature range of the alloy and at least at the temperature which is about 70% of said highest temperature in °K.

21. (Currently amended) A method according to claim 20, wherein ~~about~~ said stretching is carried out at a temperature which is between about 80% and about 98% of said highest temperature in °K.

22. (Cancelled)

23. (Currently amended) A method according to claim [[22]] 18, wherein said stretching is carried out such that said elongation is longer than a critical degree of deformation of the alloy.

24. (Cancelled)

25. (Cancelled)

26. (Previously presented) A method according to claim 18, wherein said component defines a longitudinal direction which, when the component is used in said fuel assembly, is at least substantially parallel to a longitudinal direction of the fuel assembly and wherein said stretching of the sheet is carried out in a direction which corresponds to the longitudinal direction of said component for which the sheet is intended.

27. (Withdrawn) A method for producing a channel box for use in a fuel assembly for a nuclear boiling water reactor, the method comprising the steps of:

producing at least one sheet of Zr-based alloy by the following steps:

forging, hot rolling and cold rolling in a suitable number of steps, wherein said alloy contains at least about 96 weight percent Zr, quenching said sheet by one of $\alpha+\beta$ quenching and β quenching when the sheet has been formed to a desired thickness, heat treating the sheet in the α phase temperature range of said alloy, wherein said heat treating step is performed after said producing and quenching steps, and wherein said sheet is stretched during said heat treating step; and

forming said sheets into a channel box.

28. (Withdrawn) A method for producing a water channel for a fuel assembly forming part of a nuclear boiling water reactor, comprising the steps of :

producing at least one sheet of Zr-based alloy by the following steps:

forging, hot rolling and cold rolling in a suitable number of steps, wherein said alloy contains at least about 96 weight percent Zr, quenching said sheet by one of $\alpha+\beta$ quenching and β quenching when the sheet has been formed to a desired thickness, heat treating the sheet in the α phase temperature range of said alloy, wherein said heat treating step is performed after said producing and quenching steps, and wherein said sheet is stretched during said heat treating step; and

forming said sheets into a water channel.

29. (Withdrawn) A fuel assembly for a nuclear boiling water reactor comprising:

a channel box defined at least in part by channel walls, said channel walls having a material structure obtained by forming said walls from at least one sheet of Zr based alloy produced by the following steps:

forging, hot rolling and cold rolling in a suitable number of steps, wherein said alloy contains at least about 96 weight percent Zr, quenching said sheet by one of $\alpha+\beta$ quenching and β quenching when the sheet has been formed to a desired thickness, heat treating the sheet in the α phase temperature range of said alloy, wherein said heat treating step is performed after said producing and quenching steps, and wherein said sheet is stretched during said heat treating step; and

a plurality of fuel rods comprising nuclear fuel material arranged within said channel box.

30. (Withdrawn) A fuel assembly for a nuclear boiling water reactor comprising:

at least one water channel defined at least in part by walls, said walls having a material structure obtained by forming said walls from at least one sheet of Zr based alloy produced by the following steps:

forging, hot rolling and cold rolling in a suitable number of steps, wherein said alloy contains at least about 96 weight percent Zr, quenching said sheet by one of $\alpha+\beta$ quenching and β quenching when the sheet has been formed to a desired thickness, heat treating the sheet in the α phase temperature range of said alloy, wherein said heat treating step is performed after said producing and quenching steps, and wherein said sheet is stretched during said heat treating step.